

SOLAR/1038-79/05

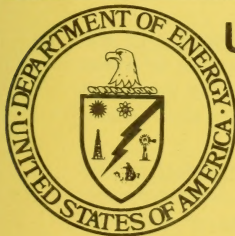
Monthly Performance Report



SADDLE HILL TRUST

LOT 36

MAY 1979



U.S. Department of Energy

National Solar Heating and
Cooling Demonstration Program

National Solar Data Program

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MONTHLY PERFORMANCE REPORT

SADDLE HILL TRUST

LOT 36

MAY 1979

I. SYSTEM DESCRIPTION

Saddle Hill Trust Lot 36 is a single-family residence in Medway, Massachusetts. Solar energy is used for space heating the home and preheating domestic hot water (DHW). The system has an array of flat-plate collectors with a gross area of 315 square feet. The array faces south at an angle of 58 degrees to the horizontal. A 60 percent glycerol solution is the transfer medium that delivers solar energy from the collector array to storage; water is the transfer medium that delivers solar energy from storage to the space heating and hot water loads. Solar energy is stored in the basement in a 750-gallon storage tank. The tank is made of steel and lined with polyurethane. Preheated city water is supplied, on demand, to a conventional 80-gallon DHW tank. When solar energy is insufficient to satisfy the space heating load, an oil furnace provides auxiliary energy for space heating. Similarly, a conventional electric 80-gallon DHW heater provides auxiliary energy for water heating. The system, shown schematically in Figure 1, has three modes of solar operation.

Mode 1 - Collector-to-Storage: This mode activates when the collector temperature is either more than 40°F higher than storage temperature or higher than 150°F. Pump P1 is on. Solar energy transfer takes place through a heat exchanger located inside the storage tank.

Mode 2 - Storage-to-Space Heating: This mode activates when there is a demand for space heating, storage temperature is 70°F or higher, and house temperature is lower than storage temperature. Pump P3 is on. Solar energy transfer takes place through a heat exchanger located inside the air duct.

Mode 3 - Storage-to-DHW Tank: This mode activates when storage water is 5°F higher than water in the DHW tank. Pump P2 is on. Solar energy transfer takes place through a heat exchanger located inside the DHW heater.

@ I001 COLLECTOR PLANE TOTAL INSOLATION
 ▼ T001 OUTDOOR TEMPERATURE
 ▼ T600 INDOOR TEMPERATURE

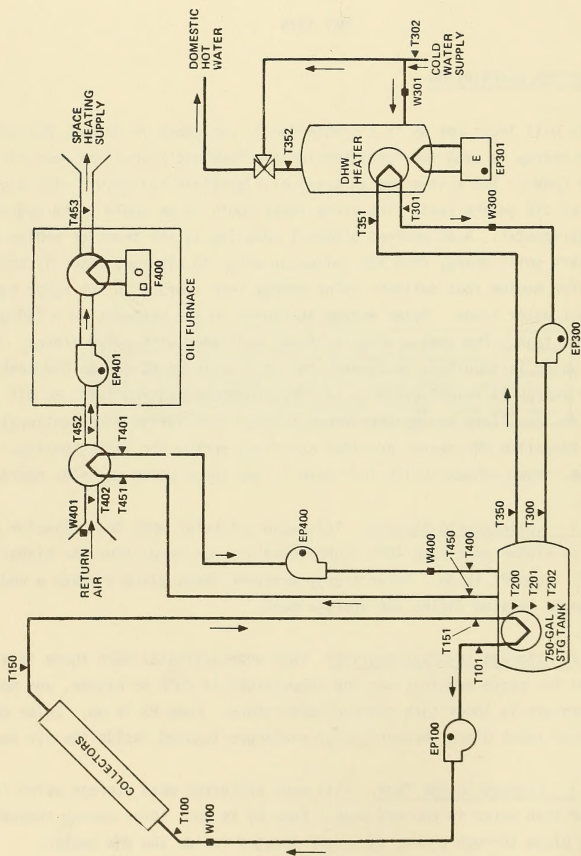


Figure 1. SADDLE HILL TRUST, LOT NO. 36, SOLAR ENERGY SYSTEM SCHEMATIC

II. PERFORMANCE EVALUATION

INTRODUCTION

The site was occupied in May and the solar energy system operated continuously during the month. Total solar energy collected was 4.0 million Btu and the total solar energy used was 3.0 million Btu or 75 percent of the collected energy. Stored energy increased by 0.044 million Btu and storage losses amounted to 0.92 million Btu. Solar energy satisfied 84 percent of the DHW requirements and 58 percent of the space heating requirements. The solar energy system provided an electrical energy savings of 2.7 million Btu and a fossil fuel energy savings of 0.072 million Btu.

WEATHER CONDITIONS

During the month, total incident solar energy on the collector array was 11.6 million Btu for a daily average of 1186 Btu per square foot. This was below the estimated average daily solar radiation for this geographical area during May of 1274 Btu per square foot for a south-facing plane with a tilt of 58 degrees to the horizontal. The average ambient temperature during May was 61°F as compared with the long-term average for May of 59°F. The number of heating degree-days for the month (based on a 65°F reference) was 165, as compared with the long-term average of 218. The number of cooling degree-days was 41, as compared with the average of 20.

THERMAL PERFORMANCE

System - During May the solar energy system performed approximately the same as expected. The expected performance was determined from a modified f-chart analysis using measured weather and subsystem loads as input. Solar energy used by the system was estimated by assuming that all energy collected would

be applied to the load. Actual solar energy used was 3.0 million Btu versus an estimated 3.2 million Btu. System total solar fraction was 83 percent versus an estimated 88 percent.

Collector - The total incident solar radiation on the collector array for the month of May was 11.6 million Btu. During the period the collector loop was operating, the total insolation amounted to 8.3 million Btu. The total collected solar energy for the month of May was 4.0 million Btu, resulting in a collector array efficiency of 34 percent, based on total incident insolation. Solar energy delivered from the collector array to storage was 4.0 million Btu. Operating energy required by the collector loop was 0.10 million Btu.

Storage - Solar energy delivered to storage was 4.0 million Btu. There were 3.0 million Btu delivered from storage to the DHW and space heating subsystems. Energy loss from storage was 0.92 million Btu. This loss represented 23 percent of the energy delivered to storage. The storage efficiency was 77 percent: This is calculated as the ratio of the sum of the energy removed from storage and the change in stored energy, to the energy delivered to storage. The average storage temperature for the month was 137°F.

DHW Load - The DHW subsystem consumed 3.0 million Btu of solar energy and 0.53 million Btu of auxiliary electrical energy to satisfy a hot water load of 1.4 million Btu. The solar fraction of this load was 84 percent. Losses from the DHW subsystem were 2.1 million Btu. The DHW subsystem consumed a total of 0.18 million Btu of operating energy, resulting in an electrical energy savings of 2.8 million Btu. A daily average of 60 gallons of DHW was consumed at an average temperature of 144°F delivered from the tank.

Space Heating Load - The space heating subsystem consumed 0.04 million Btu of solar energy and 0.51 million Btu of auxiliary fossil fuel energy to satisfy a space heating load of 0.74 million Btu. The solar fraction of this load was 58 percent. The space heating subsystem consumed a total of 0.02 million Btu of operating energy, resulting in a fossil fuel energy savings of 0.07 million Btu.

OBSERVATIONS

Adjustments were made to the DHW control system on May 24 to improve pump regulation and reduce power consumption.

ENERGY SAVINGS

The solar energy system provided an electrical energy savings of 2.7 million Btu and a fossil fuel energy savings of 0.072 million Btu. The DHW subsystem provided an electrical energy savings of 2.8 million Btu. The space heating subsystem contributed a fossil fuel energy savings of 0.072 million Btu.

III. ACTION STATUS

No items pending.

SOLAR HEATING AND COOLING DEMONSTRATION PROGRAM

MONTHLY REPORT SITE SUMMARY

SITE: SADDLE HILL TRUST LOT 36, MEDWAY, MA
REPORT PERIOD: MAY, 1979

SOLAR/1024-79/05

SITE/SYSTEM DESCRIPTION:
THE SADDLE HILL TRUST LOT #36 SOLAR ENERGY SYSTEM PROVIDES SPACE HEATING AND HOT WATER FOR A SINGLE FAMILY RESIDENCE. THE COLLECTOR IS A 14 PANEL LIQUID COLLECTOR. STORAGE IS A 750 GALLON WATER TANK LOCATED IN THE BASEMENT. AUXILIARY HEATING IS PROVIDED BY AN OIL FURNACE AND AUXILIARY HOT WATER BY AN ELECTRIC DOMESTIC HOT WATER HEATER.

GENERAL SITE DATA:

INCIDENT SOLAR ENERGY

COLLECTED SOLAR ENERGY

AVERAGE AMBIENT TEMPERATURE

AVERAGE BUILDING TEMPERATURE

EXCESS SOLAR CONVERSION EFFICIENCY

EXCESS OPERATING ENERGY

TOTAL SYSTEM OPERATING ENERGY

TOTAL ENERGY CONSUMED

11.581 MILLION BTU
3.6766 MILLION BTU
3.962 MILLION BTU
12577 BTU/SQ. FT.
61 DEGREES F
71
0.26
0.100 MILLION BTU
0.204 MILLION BTU
4.834 MILLION BTU

SUBSYSTEM SUMMARY:

HOT WATER

LOAD FRACTION

SOLAR ENERGY USED

OPERATING ENERGY

AUX. THERMAL ENERGY

AUX. ELECTRIC FUEL

AUX. ELECTRIC FUEL

ELECTRIC SAVINGS

FOSSIL SAVINGS

HEATING

0.074

58

0.043

0.031

N.A.

0.051

-0.000

0.072

COOLING

N.A.

N.A.

N.A.

N.A.

N.A.

N.A.

N.A.

SYSTEM TOTAL
1.517 MILLION BTU
1.517 PERCENT
3.049 MILLION BTU
0.294 MILLION BTU
0.558 MILLION BTU
0.527 MILLION BTU
0.051 MILLION BTU
2.730 MILLION BTU
0.072 MILLION BTU

SYSTEM PERFORMANCE FACTOR:

0.544

* DENOTES UNAVAILABLE DATA

@ DENOTES NULL DATA

N.A. DENOTES NOT APPLICABLE DATA

REFERENCE: USER'S GUIDE TO THE MONTHLY PERFORMANCE REPORT
OF THE NATIONAL SOLAR DATA PROGRAM, FEBRUARY 28, 1978,
SOLAR/0004-79/18

SOLAR HEATING AND COOLING DEMONSTRATION PROGRAM

MONTHLY REPORT SITE SUMMARY

MA

SITE: SADDLE HILL TRUST LOT 36, MEDWAY, MA
REPORT PERIOD: MAY, 1979

SOLAR/1024-79/05

SITE/SYSTEM DESCRIPTION: THE SADDLE HILL TRUST LOT #36 SOLAR ENERGY SYSTEM PROVIDES SPACE HEATING AND HOT WATER COLLECTOR. STORAGE IS A 750 GALLON WATER TANK PANEL LIQUID COLLECTOR. THE COLLECTOR IS A 14 LOCATED IN THE BASEMENT. AUXILIARY HEATING IS PROVIDED BY AN OIL FURNACE AND AUXILIARY HOT WATER BY AN ELECTRIC DOMESTIC HOT WATER HEATER.

GENERAL SITE DATA:

INCIDENT SOLAR ENERGY

COLLECTED SOLAR ENERGY

AVERAGE AMBIENT TEMPERATURE

AVERAGE BUILDING TEMPERATURE

ECSS SOLAR CONVERSION EFFICIENCY

ECSS OPERATING ENERGY

TOTAL SYSTEM OPERATING ENERGY

TOTAL ENERGY CONSUMED

12.218 GIGA JOULES
417519 KJ/SQ.M.
4.180 GIGA JOULES
142820 KJ/SQ.M.
16 DEGREES C
22
0.26 GIGA JOULES
0.105 GIGA JOULES
0.311 GIGA JOULES
5.100 GIGA JOULES

SUBSYSTEM SUMMARY:

LOAD FRACTION
SOLAR ENERGY USED
OPERATING ENERGY
AUX. THERMAL ENRG
AUX. ELECTRIC FUEL
AUX. FUELS
ELECTRICAL SAVINGS
FOSSIL SAVINGS

HOT WATER
1.522
84
3.171
0.185
0.033
0.556
N.A.
2.986
N.A.

HEATING
0.078
0.046
0.020
0.033
N.A.
0.054
-0.000
0.076

COOLING
N.A.
N.A.
N.A.
N.A.
N.A.
N.A.
N.A.
N.A.

SYSTEM TOTAL
1.600 GIGA JOULES
8.3 PERCENT
3.217 GIGA JOULES
0.311 GIGA JOULES
0.589 GIGA JOULES
0.556 GIGA JOULES
0.054 GIGA JOULES
2.881 GIGA JOULES
0.076 GIGA JOULES

SYSTEM PERFORMANCE FACTOR:

0.544

* DENOTES UNAVAILABLE DATA
@ DENOTES NULL DATA
N.A. DENOTES NOT APPLICABLE DATA

REFERENCE: USER'S GUIDE TO THE MCNTLHY PERFORMANCE REPORT
OF THE NATIONAL SOLAR DATA PROGRAM, FEBRUARY 28, 1978,
SOLAR/0004-78/18

SOLAR HEATING AND COOLING DEMONSTRATION PROGRAM

MONTHLY REPORT
ENERGY COLLECTION AND STORAGE SUBSYSTEM (ECSS)

SITE: SADDLE HILL TRUST LOT 36, MEDWAY, MA

SOLAR/1024-79/05

REPORT PERIOD: MAY, 1979

DAY OF MONTH	INCIDENT SOLAR ENERGY MILLION BTU	AMBIENT TEMP DEG-F	ENERGY THERMAL LOADS MILLION BTU	AUX THERMAL TO ECSS MILLION BTU	ECSS OPERATING ENERGY MILLION BTU	ECSS ENERGY REJECTION MILLION BTU	ECSS SOLAR CONVERSION EFFICIENCY
1	0.58	57	0.124	NOT	0.004	NOT	0.230
2	0.648	52	0.126	APPLICABLE	0.005	APPLICABLE	0.387
3	0.491	55	0.142		0.005		0.381
4	0.480	61	0.142		0.005		0.376
5	0.634	53	0.135		0.005		0.386
6	0.527	62	0.142		0.005		0.343
7	0.612	67	0.142		0.005		0.328
8	0.587	61	0.135		0.004		0.321
9	0.534	81	0.149		0.004		0.321
10	0.577	69	0.127		0.000		0.321
11	0.2114	62	0.058		0.000		0.354
12	0.133	63	0.060		0.000		0.344
13	0.091	61	0.055		0.000		1.035
14	0.094	60	0.083		0.000		0.885
15	0.462	65	0.093		0.006		0.201
16	0.463	60	0.115		0.006		0.247
17	0.423	68	0.087		0.002		0.407
18	0.120	53	0.041		0.000		0.339
19	0.121	56	0.067		0.000		0.351
20	0.303	66	0.071		0.007		0.234
21	0.591	65	0.091		0.006		0.155
22	0.133	56	0.079		0.000		0.194
23	0.054	52	0.057		0.000		1.045
24	0.111	56	0.034		0.001		0.308
25	0.211	57	0.053		0.003		0.250
26	0.514	60	0.047		0.006		0.092
27	0.102	59	0.036		0.000		0.344
28	0.628	68	0.128		0.008		0.204
29	0.102	58	0.069		0.000		0.204
30	0.718	68	0.115		0.007		0.160
31							
SUM	11.581	-	3.049	N.A.	0.100	N.A.	-
AVG	0.374	61	0.058	N.A.	0.003	N.A.	0.263
NBS ID	0001	N113			Q102		N111

* DENOTES UNAVAILABLE DATA.
@ DENOTES NULL DATA.
N.A. DENOTES NOT APPLICABLE DATA.

SOLAR HEATING AND COOLING DEMONSTRATION PROGRAM

MONTHLY REPORT COLLECTOR ARRAY PERFORMANCE

SITE: SADDLE HILL TRUST LOT 36, MEDWAY, MA SOLAR/1024-79/05
REPORT PERIOD: MAY, 1979

DAY OF MONTH	INCIDENT SOLAR ENERGY MILLION BTU	OPERATIONAL INCIDENT ENERGY MILLION BTU	COLLECTED SOLAR ENERGY MILLION BTU	DAYTIME AMBIENT TEMP DEG F	COLLECTOR ARRAY EFFICIENCY
1	0.538	0.398	0.197	65	0.373
2	0.539	0.332	0.150	68	0.386
3	0.491	0.386	0.183	69	0.373
4	0.450	0.368	0.157	68	0.321
5	0.554	0.431	0.231	69	0.353
6	0.527	0.400	0.186	70	0.353
7	0.612	0.499	0.219	81	0.353
8	0.618	0.465	0.214	88	0.348
9	0.517	0.437	0.181	89	0.349
10	0.513	0.442	0.197	79	0.342
11	0.514	0.400	0.000	71	0.000
12	0.133	0.000	0.000	63	0.000
13	0.091	0.000	0.000	61	0.000
14	0.094	0.000	0.000	69	0.383
15	0.462	0.381	0.177	70	0.366
16	0.463	0.370	0.170	71	0.369
17	0.211	0.118	0.045	68	0.209
18	0.120	0.000	0.000	68	0.000
19	0.121	0.000	0.000	68	0.000
20	0.103	0.266	0.118	* 72	0.388
21	0.091	0.525	0.278	74	0.469
22	0.133	0.001	0.000	63	0.002
23	0.054	0.000	0.000	59	0.001
24	0.111	0.032	0.019	67	0.170
25	0.211	0.128	0.058	67	0.275
26	0.514	0.431	0.208	61	0.405
27	0.102	0.000	0.000	76	0.001
28	0.628	0.596	0.308	76	0.490
29	0.102	0.000	0.000	61	0.001
30	0.718	0.635	0.320	73	0.445
31					
SUM	11.581	8.336	3.962	-	-
AVG	0.374	0.269	0.128	67	0.342
NBS ID	Q001		Q100		N100

* DENOTES UNAVAILABLE DATA.

@ DENOTES NULL DATA.

N.A. DENOTES NOT APPLICABLE DATA.

SOLAR HEATING AND COOLING DEMONSTRATION PROGRAM

MONTHLY REPORT STORAGE PERFORMANCE

SITE: SADDLE HILL TRUST LOT 36, MCDRAW, MA SOLAR/1024-79/05
REPORT PERIOD: MAY, 1979

DAY OF MONTH	ENERGY TO STORAGE MILLION BTU	ENERGY FROM STORAGE MILLION BTU	CHANGE IN STORAGE ENERGY MILLION BTU	STORAGE AVERAGE TEMP. DEG F	STORAGE EFFICIENCY
1	0.190	0.124	0.035	142	0.836
2	0.254	0.129	-0.073	151	0.798
3	0.183	0.160	-0.033	157	0.858
4	0.162	0.142	-0.015	151	0.784
5	0.243	0.115	-0.065	155	0.740
6	0.188	0.205	0.038	158	0.884
7	0.229	0.143	-0.031	159	0.763
8	0.210	0.175	-0.021	166	0.747
9	0.198	0.135	-0.009	169	0.728
10	0.184	0.127	-0.004	170	0.747
11	0.180	0.058	-0.012	164	0.747
12	0.000	0.020	-0.073	157	1.000
13	0.000	0.095	-0.088	137	1.000
14	0.000	0.083	-0.079	134	1.000
15	0.000	0.013	-0.013	133	0.967
16	0.171	0.115	0.035	128	0.893
17	0.048	0.087	-0.045	125	1.000
18	0.000	0.041	-0.046	119	1.000
19	0.000	0.067	-0.061	119	0.860
20	0.132	0.071	0.016	107	0.860
21	0.288	0.091	0.146	122	27.081
22	0.000	0.079	-0.074	126	9.885
23	0.000	0.057	-0.052	116	0.441
24	0.015	0.034	-0.028	108	0.796
25	0.060	0.047	-0.006	117	0.776
26	0.216	0.036	0.120	122	-111.325
27	0.000	0.128	-0.061	127	0.704
28	0.322	0.069	-0.098	124	7.126
29	0.000	0.069	-0.069	124	0.782
30	0.000	0.115	0.145	123	-
31	0.331	0.115	0.145	123	-
SUM	4.013	3.049	0.044	-	-
AVG	0.129	0.098	0.001	137	0.771
NBS ID	Q200	Q201	Q202	-	N108

* DENOTES UNAVAILABLE DATA.
@ DENOTES NULL DATA.
N.A. DENOTES NOT APPLICABLE DATA.

SOLAR HEATING AND COOLING DEMONSTRATION PROGRAM
MONTHLY REPORT
HOT WATER SUBSYSTEM

SITE: SADDLE HILL TRUST LOT 36, MEDWAY, MA
REPORT PERIOD: MAY, 1979

SOLAR/1024-79/05

DAY OF MON.	HOT WATER LOAD MILLION BTU	SOLAR FUEL LOAD CENT	SOLAR ENERGY USED MILLION BTU	OPER ENERGY MILLION BTU	AUX THERMAL ENERGY USED MILLION BTU	AUX ELECT FUEL MILLION BTU	AUX FOSIL FUEL MILLION BTU	ELECT ENERGY SAVINGS MILLION BTU	POSSIL SAVINGS MILLION BTU	SUP. WAT. TEMP. DEG	HOT WAT. TEMP. DEG	HOT WATER USED GAL
1	0.055	87	0.124	0.006	0.006	0.000	NOT APPLICABLE	0.123	0.123	55	33	72
2	0.048	99	0.129	0.006	0.003	0.000	NOT APPLICABLE	0.127	0.127	55	33	135
3	0.109	100	0.142	0.006	0.000	0.000	NOT APPLICABLE	0.136	0.136	55	33	182
4	0.063	100	0.115	0.006	0.000	0.000	NOT APPLICABLE	0.133	0.133	55	33	108
5	0.056	100	0.169	0.006	0.000	0.000	NOT APPLICABLE	0.137	0.137	55	33	149
6	0.091	100	0.114	0.006	0.000	0.000	NOT APPLICABLE	0.136	0.136	55	33	149
7	0.038	100	0.142	0.006	0.000	0.000	NOT APPLICABLE	0.125	0.125	55	33	135
8	0.044	100	0.135	0.006	0.000	0.000	NOT APPLICABLE	0.125	0.125	55	33	135
9	0.035	100	0.149	0.006	0.000	0.000	NOT APPLICABLE	0.125	0.125	55	33	135
10	0.041	100	0.127	0.006	0.000	0.000	NOT APPLICABLE	0.125	0.125	55	33	135
11	0.030	100	0.060	0.006	0.000	0.000	NOT APPLICABLE	0.125	0.125	55	33	135
12	0.032	100	0.095	0.006	0.006	0.006	NOT APPLICABLE	0.125	0.125	55	33	135
13	0.058	98	0.083	0.006	0.026	0.026	NOT APPLICABLE	0.125	0.125	55	33	135
14	0.036	82	0.083	0.006	0.030	0.030	NOT APPLICABLE	0.125	0.125	55	33	135
15	0.040	76	0.115	0.007	0.030	0.030	NOT APPLICABLE	0.125	0.125	55	33	135
16	0.033	77	0.187	0.007	0.025	0.025	NOT APPLICABLE	0.125	0.125	55	33	135
17	0.037	78	0.041	0.006	0.019	0.019	NOT APPLICABLE	0.125	0.125	55	33	135
18	0.020	69	0.067	0.006	0.046	0.046	NOT APPLICABLE	0.125	0.125	55	33	135
19	0.040	62	0.071	0.007	0.050	0.050	NOT APPLICABLE	0.125	0.125	55	33	135
20	0.046	58	0.091	0.007	0.029	0.029	NOT APPLICABLE	0.125	0.125	55	33	135
21	0.055	67	0.079	0.007	0.026	0.026	NOT APPLICABLE	0.125	0.125	55	33	135
22	0.049	66	0.057	0.005	0.033	0.033	NOT APPLICABLE	0.125	0.125	55	33	135
23	0.053	57	0.043	0.004	0.039	0.039	NOT APPLICABLE	0.125	0.125	55	33	135
24	0.043	54	0.053	0.004	0.035	0.035	NOT APPLICABLE	0.125	0.125	55	33	135
25	0.033	55	0.047	0.004	0.028	0.028	NOT APPLICABLE	0.125	0.125	55	33	135
26	0.015	55	0.036	0.002	0.022	0.022	NOT APPLICABLE	0.125	0.125	55	33	135
27	0.030	69	0.128	0.006	0.028	0.028	NOT APPLICABLE	0.125	0.125	55	33	135
28	0.060	73	0.069	0.004	0.031	0.031	NOT APPLICABLE	0.125	0.125	55	33	135
29	0.030	73	0.115	0.006	0.016	0.016	NOT APPLICABLE	0.125	0.125	55	33	135
30	0.042	84	0.115	0.006	0.016	0.016	NOT APPLICABLE	0.125	0.125	55	33	135
31	0.042	84	0.115	0.006	0.016	0.016	NOT APPLICABLE	0.125	0.125	55	33	135
SUM	1.442	-	3.006	0.175	0.527	0.527	N.A.	2.831	N.A.	-	-	1851
AVG	0.047	84	0.097	0.006	0.017	0.017	N.A.	0.091	N.A.	57	144	60
NBS	Q302	N300	Q300	Q303	Q301	Q305	Q306	Q311	Q313	N305	N307	N308

* DENOTES UNAVAILABLE DATA.
@ DENOTES NULL DATA.
N.A. DENOTES NOT APPLICABLE DATA.

SOLAR HEATING AND COOLING DEMONSTRATION PROGRAM

MONTHLY REPORT SPACE HEATING SUBSYSTEM

SITE: SADDLE HILL TRUST LOT 36, MEDWAY, MA

SOLAR/1024-79/05

REPORT PERIOD: MAY, 1978

DAY OF MON.	SPACE HEATING LOAD MILLION BTU	SOLAR FR. OF LOAD PCT	SOLAR ENERGY USED MILLION BTU	OPER ENERGY MILLION BTU	AUX THERMAL USED MILLION BTU	AUX ELECT FUEL MILLION BTU	AUX FOSSIL FUEL MILLION BTU	ELECT ENERGY SAVINGS MILLION BTU	FOSSIL ENERGY SAVINGS MILLION BTU	BLDG TEMP DEG. F	AIR TEMP DEG. F
1	0.000	0	0.000	0.000	0.000		0.000	0.000	0.000	70	57
2	0.008	0	0.000	0.000	0.000		0.000	0.000	0.000	67	52
3	0.008	100	0.008	0.004	0.000		0.000	-0.000	0.013	67	55
4	0.000	0	0.000	0.000	0.000		0.000	0.000	0.000	71	61
5	0.000	0	0.000	0.000	0.000		0.000	0.000	0.000	71	54
6	0.066	53	0.035	0.016	0.031		0.051	-0.000	0.058	68	53
7	0.000	0	0.000	0.000	0.000		0.000	0.000	0.000	71	62
8	0.000	0	0.000	0.000	0.000		0.000	0.000	0.000	73	67
9	0.000	0	0.000	0.000	0.000		0.000	0.000	0.000	79	77
10	0.000	0	0.000	0.000	0.000		0.000	0.000	0.000	77	81
11	0.000	0	0.000	0.000	0.000		0.000	0.000	0.000	77	69
12	0.000	0	0.000	0.000	0.000		0.000	0.000	0.000	73	62
13	0.000	0	0.000	0.000	0.000		0.000	0.000	0.000	74	61
14	0.000	0	0.000	0.000	0.000		0.000	0.000	0.000	74	60
15	0.000	0	0.000	0.000	0.000		0.000	0.000	0.000	73	60
16	0.000	0	0.000	0.000	0.000		0.000	0.000	0.000	70	65
17	0.000	0	0.000	0.000	0.000		0.000	0.000	0.000	68	60
18	0.000	0	0.000	0.000	0.000		0.000	0.000	0.000	67	58
19	0.000	0	0.000	0.000	0.000		0.000	0.000	0.000	67	52
20	0.000	0	0.000	0.000	0.000		0.000	0.000	0.000	67	56
21	0.000	0	0.000	0.000	0.000		0.000	0.000	0.000	70	66
22	0.000	0	0.000	0.000	0.000		0.000	0.000	0.000	72	65
23	0.000	0	0.000	0.000	0.000		0.000	0.000	0.000	70	52
24	0.000	0	0.000	0.000	0.000		0.000	0.000	0.000	69	52
25	0.000	0	0.000	0.000	0.000		0.000	0.000	0.000	67	57
26	0.000	0	0.000	0.000	0.000		0.000	0.000	0.000	67	57
27	0.000	0	0.000	0.000	0.000		0.000	0.000	0.000	67	60
28	0.000	0	0.000	0.000	0.000		0.000	0.000	0.000	67	59
29	0.000	0	0.000	0.000	0.000		0.000	0.000	0.000	71	58
30	0.000	0	0.000	0.000	0.000		0.000	0.000	0.000	71	58
31	0.000	0	0.000	0.000	0.000		0.000	0.000	0.000	72	68
SUM	0.074	-	0.043	0.019	0.031	N.A.	0.051	-0.000	0.072	-	-
AVG	0.002	58	0.001	0.001	0.001	N.A.	0.002	-0.000	0.002	71	61
NBS	Q402	N400	Q400	Q403	C401		Q410	Q415	Q417	N406	N113

* DENOTES UNAVAILABLE DATA.
 @ DENOTES NULL DATA.
 N.A. DENOTES NOT APPLICABLE DATA.

SOLAR HEATING AND COOLING DEMONSTRATION PROGRAM
MONTHLY REPORT
SPACE COOLING SUBSYSTEM

SITE: SADDLE HILL TRUST LOT 36, MEDWAY, MA
REPORT PERIOD: MAY, 1979

SOLAR/1024-79/05

DAY OF MON.	SPACE COOLING LOAD MILLION BTU	SOLAR FR. OF LOAD PCT	SOLAR ENERGY USED MILLION BTU	OPER ENERGY MILLION BTU	AUX THERMAL USED MILLION BTU	AUX ELECT FUEL MILLION BTU	AUX FOSSIL FUEL MILLION BTU	ELECT ENERGY SAVINGS MILLION BTU	FOSSIL ENERGY SAVINGS MILLION BTU	BLOG DPY BULB TEMP F	AMB TEMP DEG F
1	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	70	57
2	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	67	55
3	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	71	55
4	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	71	54
5	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	71	53
6	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	71	52
7	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	70	52
8	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	73	51
9	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	73	51
10	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	74	50
11	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	74	50
12	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	74	50
13	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	70	49
14	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	67	48
15	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	67	48
16	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	70	48
17	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	72	48
18	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	72	48
19	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	70	48
20	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	72	48
21	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	72	48
22	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	70	48
23	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	72	48
24	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	70	48
25	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	72	48
26	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	70	48
27	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	72	48
28	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	70	48
29	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	72	48
30	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	70	48
31	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	72	48
SUM	N.A.	-	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	-	-
AVG	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	71	61
NBS	Q502	N500	Q500	Q503	Q501	N.A.	Q508	Q512	Q514	N406	N113

* DENOTES UNAVAILABLE DATA.
@ DENOTES NULL DATA.
N.A. DENOTES NOT APPLICABLE DATA.

SOLAR HEATING AND COOLING DEMONSTRATION PROGRAM

MONTHLY REPORT ENVIRONMENTAL SUMMARY

SOLAP/1024-79/05

SITE: SADDLE HILL TRUST LOT 36, MEDWAY, MA
REPORT PERIOD: MAY, 1979

DAY OF MONTH	TOTAL INSOLATION BTU/SQ. FT	DIFUSE INSOLATION BTU/SQ. FT	AMBIENT TEMPERATURE DEG F	DAYTIME AMBIENT TEMP DEG F	RELATIVE HUMIDITY PERCENT	WIND DIRECTION DEGREES	WIND SPEED M.P.H.
1	1675	NOT	57	65	NOT	NOT	NOT
2	2037		52	58			
3	1539		51	59			
4	1505		51	58			
5	2015		54	59			
6	1671		53	70			
7	1942		52	81			
8	1863		67	88			
9	1769		77	89			
10	1697		81	79			
11	1831		65	71			
12	6800		62	63			
13	4222		60	61			
14	2287		60	69			
15	2297		55	70			
16	1467		60	61			
17	6771		58	58			
18	381		56	58			
19	384		56	58			
20	3962		55	72			
21	1877		55	64			
22	4222		52	53			
23	172		56	59			
24	353		57	59			
25	669		57	67			
26	1630		60	61			
27	3233		59	76			
28	1992		68	73			
29	323		68				
30	2281		58				
31							
SUM	36766	N.A.	-	-	-	-	-
AVG	1186	N.A.	61	67	N.A.	N.A.	N.A.
NBS ID	Q001		N113		N115	N114	

* DENOTES UNAVAILABLE DATA.

@ DENOTES NULL DATA.

N.A. DENOTES NOT APPLICABLE DATA.

UNIVERSITY OF FLORIDA



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